

CLAIMS

We claim:

1. An input device comprising:  
a transparent substrate;  
an array of optical sensors disposed on the substrate, the optical sensor array comprising: at least a first optical sensor defining at least one row element and at least a second optical sensor defining at least one column element;  
an array of conductive traces disposed on the substrate, the conductive trace array comprising: at least a first conductive trace defining a row signal pathway and at least a second conductive trace defining a column signal pathway; and  
wherein the array of optical sensors generate signals on the array of conductive traces upon excitation by electromagnetic radiation.
2. The input device of claim 1 wherein the first optical sensor comprises an output defining a row signal.
3. The input device of claim 1 wherein the second optical sensor comprises an output defining a column signal.
4. The input device of claim 2 wherein the second optical sensor comprises an output defining a column signal.
5. The input device of claim 1 wherein the substrate comprises a material having glass.

6. The input device of claim 1 wherein the electromagnetic radiation comprises visible light.

7. The input device of claim 1 wherein the electromagnetic radiation comprises infra-red light.

8. The input device of claim 1 wherein the first or second optical sensors comprise an output defining a row or column first state and a row or column second state.

9. The input device of claim 8 wherein the first state comprises a first signal level.

10. The input device of claim 9 wherein the second state comprises a second signal level.

11. A display comprising:

a screen for displaying images; and

an input device comprising:

    a transparent substrate;

    an array of optical sensors disposed on the substrate, the optical sensor array comprising: at least a first optical sensor defining at least one row element and at least a second optical sensor defining at least one column element;

    an array of conductive traces disposed on the substrate, the conductive trace array comprising: at least a first conductive trace defining a row signal pathway and at least a second conductive trace defining a column signal pathway; and

wherein the array of optical sensors generate signals on the array of conductive traces upon excitation by electromagnetic radiation.

12. The display of claim 11 wherein the first optical sensor comprises an output having a row signal and wherein the row signal comprises a first and second state.

13. The display of claim 12 wherein the second optical sensor comprises an output having a column signal and wherein the column signal comprises a first and second state.

14. The display of claim 11 wherein the row signal switches from the first to the second state upon electromagnetic excitation of the first optical sensor.

15. The display of claim 14 wherein the column signal switches from the first to the second state upon electromagnetic excitation of the second optical sensor.

16. The display of claim 11 further comprising a row and column output.

17. A computer system comprising:  
a computer; and  
a display comprising:  
a screen for displaying images; and  
an input device comprising:  
a transparent substrate;  
an array of optical sensors disposed on the substrate, the optical sensor array comprising: at

least a first optical sensor defining at least one row element and at least a second optical sensor defining at least one column element;

an array of conductive traces disposed on the substrate, the conductive trace array comprising: at least a first conductive trace defining a row signal pathway and at least a second conductive trace defining a column signal pathway; and

wherein the array of optical sensors generate signals on the array of conductive traces upon excitation by electromagnetic radiation.

18. The display of claim 17 wherein the first optical sensor comprises an output having a row signal and wherein the row signal comprises a first and second state.

19. The display of claim 18 wherein the second optical sensor comprises an output having a column signal and wherein the column signal comprises a first and second state.

20. The display of claim 11 wherein the row signal switches from the first to the second state upon electromagnetic excitation of the first optical sensor.

21. The display of claim 14 wherein the column signal switches from the first to the second state upon electromagnetic excitation of the second optical sensor.

22. An input device comprising:  
a transparent substrate;

an array of optical sensors disposed on the substrate, the optical sensor array comprising: at least a first optical sensor defining at least one row element and at least one column element;

an array of conductive traces disposed on the substrate, the conductive trace array comprising: at least a first conductive trace defining a row signal pathway and at least a second conductive trace defining a column signal pathway; and

wherein the array of optical sensors generate signals on the array of conductive traces upon excitation by electromagnetic radiation.

23. An input device comprising:

transparent substrate means;

optical sensing means disposed on the substrate means and defining at least one row element and at least one column element;

row signal means and column signal means disposed on the substrate means; and

wherein the optical sensing means generates signals on the row signal means and column signal means upon excitation by electromagnetic radiation.

24. A remotely actuatable cursor device comprising:

a pointer for generating a beam of electromagnetic radiation;

a sensing panel located substantially remotely from the pointer configured to sense the beam of electromagnetic radiation;

a computer in circuit communication with the sensing panel configured to associate the sensing of the beam of electromagnetic radiation by the sensing panel with a

position of a cursor on a display associated with the computer.

25. The device of claim 24 wherein the sensing panel comprises a length and a width and wherein the length and width have a dimension that at least equivalent to a portion of a screen of the display.

26. The device of claim 24 further comprising a head harness or mount for attaching the pointer to the head of a user.

27. The device of claim 24 wherein the sensing panel comprises a transparent substrate.

28. The device of claim 24 wherein the sensing panel is superposed on the display.

29. A method of controlling a cursor or pointer comprising:

emitting a beam of electromagnetic energy;  
sensing a location of the beam on an input panel having a transparent substrate;  
associating the location of the beam on the input panel with a cursor or pointer displayed on a screen.

30. The method of claim 29 further comprising the step of displaying an image of a cursor or pointer substantially behind the location of the beam on the input panel.

31. The method of claim 29 further comprising generating an image of a cursor or pointer on a display and

transmitting the image through the input panel at a position corresponding to the location of the beam on the input panel.

32. A method of remotely controlling a cursor or pointer comprising:

emitting a beam of electromagnetic energy from a pointer device situated at a first location;

sensing a location of the beam on an input panel located situated at a second position distant from the first position; and

associating the location of the beam on the input panel with a cursor or pointer displayed on a screen situated at a third location.

33. The method of claim 32 wherein emitting a beam of electromagnetic energy from a pointer device situated at a first location comprises emitting a beam of electromagnetic radiation for a pointer device attached to the head of a user.

34. A system for remotely controlling a cursor or pointer comprising:

means for emitting a beam of electromagnetic energy;

substantially transparent means for sensing a location of the beam; and

means for associating the location of the beam on the means for sensing with a cursor or pointer displayed on a display means.